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ABSTRACT

The quest for excellence in American higher education has been accompanied by the implementation of basic skills requirements and the corresponding assessment programs. Assessment results could provide feedback for curricular improvement, although they are frequently used as indicators of institutional quality. A study is presented that compared curriculum patterns before and after a college level academic skills program, which was intended to address curriculum, was implemented in the Florida State University and Community College Systems. Changes were analyzed in general education requirements (in communication, cultural and mathematical foundations, algebra, social sciences and natural sciences), the distribution requirements completed by graduates, and the degree completion rate for minority students by race. Findings included the following: (1) modifications were made in the general education program to address the communications and mathematical foundation curricular needs; (2) speech became a degree requirement more often and requirements for English composition became more rigid; (3) program completion rates among Blacks decreased by 3% for associate of arts degrees (while national figures remained static) and increased by 1% for baccalaureate degrees (while national figures decreased by .5%; and (4) program completion rates among Hispanics increased by nearly 3% for associate of arts degrees and by 1% for baccalaureate degrees. Contains 9 references. (Author/KM)

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CURRICULAR IMPACT OF COLLEGE LEVEL SKILLS ASSESSMENTS

Presented at

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Phoenix, Arizona

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for Management Research, Policy Analysis, and Planning

This paper was presented at the Twenty-Eighth Annual Forum of the Association for Institutional Research held at the Hyatt Regency Phoenix Hotel, Phoenix, Arizona, May 15-18, 1988. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Teresa Karolewski
Chair and Editor
Forum Publications Editorial
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ABSTRACT

The quest for excellence in American higher education has been accompanied by the implementation of basic skills requirements and the corresponding assessment programs. Although assessment results could provide feedback for curricular improvement, they are frequently used as indicators of institutional quality. This paper presents the findings of a study which compares curriculum patterns before and after a college level academic skills program was implemented. It provides specific information on change in the general education requirement by area, the distribution requirements completed by the graduates, and the degree completion rate for minority students by race.

INTRODUCTION

Much has been said about the quality of undergraduate education in America. The quest for academic excellence has become a national priority. Numerous states have developed a basic skills requirement. Some states have developed comprehensive substantive testing programs to assess student achievements in the basic skills areas of computation, communication, and reading.

The quest for excellence in American higher education is evident by the number of state, federal commissions and study groups which have addressed this topic. Although the recommendations advanced by the various groups have not been uniform, a common thread of comprehensive assessment is prevalent in most reports. For example, a study group (1987) on the condition of excellence in higher education sponsored by the National Institute of Education indicated that, "student evaluations of academic programs in the learning environment should be conducted regularly" and "the results should be widely disseminated as a basis for strengthening the quality of undergraduate baccalaureate education."

Strengthening undergraduate education in America will come about through curriculum modification. While the implementation of an assessment program may provide comparative information among institutions and increase the level of motivation of those affected by the assessment program, the quest for excellence in undergraduate education will only be realized if curriculum changes designed to provide the academic skills and competencies inherent in a quality undergraduate education program are imbedded in that component of the curriculum completed by all students.

During October of 1982, the first administration of the Florida CLAST was given. Although passing scores were not established until

August 1, 1984, all Associate of Arts degree graduates and university transfers were required to sit for the examination.

The Florida State Board of Education adopted the philosophy that CLAST standards would be raised in increments. The 1984 standards were set at a level commensurate with student achievement at that time. Table 1 provides the standards by year and subtest. The 1989 standards represent the desired standard for achievement in the academic skills areas.

Access for minority students may be adversely affected by comprehensive assessment programs. While the quest for excellence is a valid national priority, the educational community must determine if the assessment programs have a negative impact on access for affected classes. Historically minority students been less likely to take standardized tests and have performed below their non-minority peers. Therefore, the implementation of an assessment program may decrease the probability of a minority student participating in higher education and may limit the progress minority students make toward completing baccalaureate degrees.

TABLE 1
THE 1984, 1986 AND 1989 COLLEGE-LEVEL ACADEMIC SKILLS STANDARDS EXPRESSED IN TERMS OF CLAST SCALE SCORES

CLAST Subtest	CLAST Standards for: 1984*	1986*	1989*
Reading	260	270	295
Writing	265	270	295
Computation	260	275	295
Essay	4	4	5

*The cut-off scores became effective on August 1.
Source: Student Achievement of College Level Communication and Computational Skills in Florida: 1985-86

The purpose of this study was to determine what changes occurred with the implementation of a College Level Academic Skills Testing (CLAST) program in the State of Florida. The specific objectives were:

1. To determine what general education requirement changes occurred at three community colleges and two public universities;
2. To determine if the proportion of Black and Hispanic students who completed the Associate of Arts degree in Florida's Public Community Colleges changed after the implementation of CLAST;
3. To determine if the proportion of Black and Hispanic students who completed the baccalaureate degree in the State University System of Florida changed after the implementation of CLAST.

HISTORICAL REVIEW

During the late 1970's and early 1980's, the public and legislators began asking questions about the real value of higher education. With a large number of agencies competing for limited resources the basic question being asked was: Is higher education worth its cost? Witt (1987) reported that as a result of this inquiry, colleges were forced to seek new methods of demonstrating the quality of their educational products.

The quest for excellence in Florida's postsecondary educational system began with a performance based strategy which included the identification of desired outcomes, setting achievement standards, implementing assessment programs and monitoring desired outcomes. This strategy was implemented under the College Level Academic Skills project. The Florida Department of Education Rule 6A-10.0314 required that students admitted to upper division status in the State University System present scores on the CLAST which met minimum standards established by the State Board of Education.

Although CLAST is considered by some to be an indicator of educational quality, it has its critics. Witt reported that although the College Level Academic Skills program had many positive impacts, critics point to the negative consequences of using CLAST scores as predictors of upper division performance and denying students access to the upper division or a 2-year diploma based on the performance of a single examination. Hirtz (1985) reported there was little doubt that CLAST scores had become a measure of institutional quality and could be used for the purpose of comparison and competition among institutions. A study completed by Belcher (1985) revealed that the student's basic skill test scores at entry were better predictors of future performance on the College Level Academic Skills Test, in most areas, than the curriculum the student completed. A study completed by Livingston (1985) also revealed a considerable degree of association between the entry level test scores and the various CLAST components being assessed. He observed a correlation of .68 between CLAST reading scores and the SAT verbal score, a correlation of .59 between the TSWE (Test of Standard Written English) score and the CLAST writing score, and a correlation of .73 between the SAT math score and the CLAST computation score.

In 1987, the American Council on Education reported that 79% of the administrators who participated in a survey indicated that some form of assessment of student learning outcomes will be introduced within the next few years. Further, they reported that 75% of the 4-year colleges currently have assessment discussions taking place on their campuses. The College Board reported several initiatives to improve undergraduate education through assessments in its "Outcome Assessment in Higher

Education College Administrators Workshop Guide". Several assessment issues were cited. They are as follows:

> Is assessment being undertaken as an integral part of the educational process to provide useful feedback for program improvement or as a means of holding the individual student college program or an entire institution accountable for the purpose of advancement, accreditation, or allocation of state funds?
>
> Is faculty resistance to outcomes assessment based in part on the fear of individual accountability?
>
> Is the effect of assessment on equal access to higher education for minorities being considered. One concern is that low assessment of effectiveness may lead to restricted access for minorities.
>
> Is the availability of tools and procedures for providing adequate outcomes assessment being considered.

It is evident from the climate in legislatures, national committees, study groups, and governing boards that assessment in higher education to measure the quality of the undergraduate baccalaureate will remain a national priority. However, it is not clear that institutions are using assessment information to improve curriculum quality or to analyze the impact on access and completion rates for minority students.

THE STUDY

The College Level Academic Skills Program was implemented in reaction to concern that the quality of higher education in Florida was below the desired level. Although student achievement was the output measure under review, the curriculum was the major issue being addressed. This was evident from the manner in which the CLAST standards were implemented. By developing incremental standards, the institutions were given sufficient time to adjust the curriculum and implement achievement standards to enhance student learning to the desired level by 1989.

GENERAL EDUCATION REQUIREMENTS

The basic general education requirements of the institutions were reviewed to ensure that the desired academic skills were being taught. Table 2 provides a summary of the general education requirements of three public community colleges and two state universities. These data were stratified by communications, cultural and historical foundations, mathematical foundations, social science foundations, and natural science foundations. The data revealed only minor changes in the structure of the general education program between the two time periods. Changes occurred in the requirements in the communications foundation and the mathematical foundation areas.

TABLE 2
GENERAL EDUCATION REQUIREMENT
BY INSTITUTION, YEAR AND CURRICULAR CATEGORY

Curricular Category	1981-82 Pre-CLAST Era					1984-85 CLAST Era				
	Inst 1c	Inst 2c	Inst 3c	Inst 4u	Inst 5u	Inst 1c	Inst 2c	Inst 3c	Inst 4u	Inst 5u
Comm Found										
Eng Comp	6	6	6	6	6	6	6	6	6	6
Speech		3		3		3	3	3	3	
Cult Found	9	6	7	9	6	9	6	7	9	7
Math Found	3	3	3	3	6	6	6	6	6	6
College Algebra Above	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Soc Sci Found	6	6	9	9	6	6	6	9	9	6
Nat Sci Found	6	10	9	7	6	6	10	9	7	6

In the communications foundation area, four institutions required speech in the CLAST era as compared to two in the pre-CLAST era. The English composition requirement remained unchanged. A two-way analysis of variance design was used to test the null hypothesis for both institution and era. These data revealed that the communication foundations requirements were not dependent on era or institution at the .10 level of significance.

Communication Foundation ANOVA Summary

Source	df	ss	ms	F
Era	1	3.600	3.600	2.667
Inst	4	12.600	3.150	2.333
Error	4	5.400	1.350	
Total	9	21.6		

In the mathematical foundations area the number of credit hours was increased from 3 to 6 at four of the five institutions during the CLAST era. At the fifth institution the number of hours remained unchanged. A two-way analysis of variance design was used to test the null hypothesis for both institution and era. These data revealed that the number of mathematics credit hours was dependent on era and independent of institution. This difference was associated with the increase in the number of hours required to meet this requirement.

In addition to increasing the number of hours in the mathematical foundation area, the number of courses below college algebra that could be used to satisfy this requirement was reduced.

Mathematical Foundation ANOVA Summary

Source	df	ss	ms	F
Era	1	14.400	14.400	16.000
Inst	4	3.600	0.900	1.000
Error	4	3.600	0.900	
Total	9	21.6		

*P < .05

The curricular requirements in cultural historical foundations, social science foundations and natural science foundations areas remained unchanged. Although the organization of the course grouping showed some change, the overall requirements remained static.

GENERAL EDUCATION PROGRAM CONTENT

The relationship between the general education program requirements and the use of substitute courses to meet the requirements varied from institution to institution. Although the goal of the legislative action may have been to require college algebra of each student, individual institutions offered substitute courses that were less rigorous. In the area of English composition, some institutions allowed professional report writing as a substitute course for an English composition course during the pre-CLAST era. To investigate the program content for completers in the broad general education areas of English composition, mathematics and cultural and historical foundations, an analysis of the program of study of 25 students from each of two community colleges and one university were completed for the pre-CLAST era and the CLAST era. Each student in the sample completed a baccalaureate degree at the University of Central Florida.

Table 3 provides a summary of the average number of credit hours completed by institution in each of the curricular areas during the pre-CLAST era and the CLAST era. The course work counted toward meeting the English composition requirement was limited to English writing courses and did not include the professional report writing course. Courses in the area of statistics, computer science and logic taught in the Philosophy Department were not counted toward meeting the mathematics requirement.

TABLE 3
GENERAL EDUCATION PROGRAM AVERAGE CREDIT HOURS COMPLETED BY INSTITUTION, YEAR, CURRICULAR CATEGORY

Curriculum Category	1981-82 Pre-CLAST Era			1984-85 CLAST Era		
	Inst 1c	Inst 2c	Inst 1u	Inst 1c	Inst 2c	Inst 1u
Eng Comp	6	5.6	4.4*	6	5.9	6.1
College Alg** or Above	2	2.5	3.3	2	3.4	4.8
Math Below College Alg	3.8	3.5	1.1	3.2	3.7	1.1
Cultural/Historical Foundations	9.8	6.8	6.3	9.5	7.6	7.6

*Professional report writing was an elective English composition course.
**The number of hours was limited to 6 hours per student.

These data revealed only minor differences in the average number of credit hours completed in English composition. Although the average number of credit hours increased by 1.7 hours at the university, the increase was associated with not accepting professional report writing as an alternate for English composition during the CLAST era. A two-way analysis of variance design was utilized to test the null hypotheses for both

institution and era. This analysis did not reveal that credit hours completed was dependent on either institution or era at the .10 level of significance.

English Composition Hours Complete ANOVA Summary

Source	df	ss	ms	F
Era	1	0.667	0.667	1.619
Inst	2	0.583	0.292	0.709
Error	2	0.823	0.412	
Total	5	2.073		

A comparison of the number of credit hours completed at the college algebra level or above varied among institutions. At one community college, there was no change. At the second, there was an increase of .9 of a credit hour and at the university there was an increase of 1.5 credit hours. Even though there was a slight increase at the college algebra or above level at two institutions, the average number of hours completed in mathematics below college algebra remained almost static. A two-way analysis of variance design was used to test the null hypotheses for both institution and era. This analysis did not reveal that the number of college algebra or above credit hours completed was dependent on era or institution at the .10 level of significance.

Courses completed in the areas of humanities, literature and history (cultural and historical foundations) satisfied a general education writing requirement in the Florida Public Community College System and the State University System institutions. Therefore, these courses contribute to the development of the communication basic skills. A comparison of the average number of credit hours completed in the cultural and historical foundation

area revealed substantial differences among institutions but very little difference among time periods. At one of the community colleges, the average number of hours completed in this area was more than 9 during both time periods as compared to 6.3 at the university and 6.8 at the other community college during the pre-CLAST era and 7.6 at both institutions during the CLAST era. A two-way analysis of variance design was utilized to test the null hypotheses for both institution and era. This analysis revealed that the number of hours was dependent on institution but independent of era at the .10 level of significance. No difference was observed between the two time periods.

Cultural & Historical Foundation ANOVA Summary

Source	df	ss	ms	F
Era	1	0.540	0.540	1.612
Inst	2	8.903	4.452	13.290
Error	2	0.670	0.335	
Total	5	10.113		

*P < 1.0

The analysis of both the general education requirements and the courses completed to satisfy these requirements revealed minor changes between the two periods.

PROGRAM COMPLETION RATE

The legislation responsible for the implementation of the College Level Academic Skills Program did not address the issue of minority access or completion of programs at the associate of arts and baccalaureate levels. An analysis was completed to determine if the proportion of Black and Hispanic student completers at the associate of art and baccalaureate levels

remained the same during the two time periods. Table 4 provides a summary of the number of degrees awarded at the associate of arts level by the Florida Public Community College System for three years. These data revealed a substantial decrease in the number of students who completed the Associate of Arts degree from the pre-CLAST era to the CLAST era. While the total number of Associate of Arts degrees decreased by approximately 28% between 1981-82 and 1986-87, the number of Associate of Arts degrees awarded to Black students decreased by nearly 50% and the number awarded to Hispanic students decreased by more than 38%. A comparison of the proportion of degrees conferred to Black AA recipients revealed a drop from 7.6% in 1981-82 to 5.5% in 1984-85 and 5.3% in 1986-87. Although there was a reduction in the number of Black AA recipients at the national level from 1981-82 to 1984-85, the proportion of Black AA recipients remained quite stable. In 1981-82, 8.9% of the AA recipients at the national level were Black as compared to 8.3% in 1984-85. Comparative national data have not been released for the 1986-87 period. Similar findings were observed for Hispanic students. In 1981-82, 14.1% of the AA recipients from Florida Public Community Colleges were Hispanic whereas in 1984-85 and 1986-87 the percentage decreased to 12.5% and 12.1% respectively. The U.S. Department of Education advised that comparative national data did not exist for Hispanic AA recipients for the period under consideration.

A chi square analysis was completed to test the null hypotheses of no difference. The null hypothesis was rejected at the .001 level of significance. These findings revealed that the number of AA recipients is dependent on time period. The smaller proportion of Black and Hispanic

TABLE 4
FLORIDA PUBLIC COMMUNITY COLLEGE
AA DEGREES CONFERRED BY RACE AND YEAR

Year	Black	Hispanic	Other	Total
1986-87	811	1,847	12,545	15,203
1984-85	788	1,788	11,722	14,298
1981-82	1,615	2,984	16,607	21,206

Source: Florida State Board of Community Colleges

students who earned the Associate of Arts degree during the CLAST era accounted for the difference.

Table 5 provides a summary of the number of degrees awarded at the baccalaureate level by institution in the Florida State University System during the two eras. These data revealed an increase in number of Black and Hispanic baccalaureate graduates for both CLAST years. The proportion of Black baccalaureate recipients remained virtually unchanged for the two eras and proportion of Hispanic baccalaureate recipients increased from 5.8% in 1981-82 to 6.5% in 1984-85 and 7.2% in 1986-87. A comparison of these rates with national data revealed that while the proportion of Black baccalaureate recipients at the national level decreased from 6.49% in 1981-82 to 5.93% in 1984-85, the proportion remained static for the Florida State University System. While Hispanic baccalaureate recipients at the national level decreased from 2.67% in 1981-82 to 2.34% in 1984-85, the proportion increased from 5.8% to 6.5% for the Florida State University System.

TABLE 5
FLORIDA STATE UNIVERSITY SYSTEM
BACCALAUREATE DEGREES CONFERRED BY RACE AND YEAR

Year	Black	Hispanic	Other	Total
1986-87	1,344	1,528	18,230	21,102
1984-85	1,396	1,374	18,399	21,169
1981-82	1,262	1,095	16,642	18,999

Source: 1981-82, 1984-85, 1986-87 State University System of Florida Fact Books

A chi square analysis was completed to test the null hypotheses of no difference. The null hypothesis was rejected at the .01 level of significance. These findings revealed that the proportion of baccalaureate recipients was dependent on time period with a greater proportion of Hispanic minority students earning the baccalaureate degree during the post-CLAST era.

Although these findings revealed that the proportion of Black AA recipients decreased during the post-CLAST era, the implementation of the College Level Skills Program did not adversely impact the completion rate of Black and Hispanic minority students at the baccalaureate level. Although the number of community college students who completed the Associate of Arts degree decreased during the CLAST era, the number of baccalaureate recipients from the State University System increased during the corresponding periods.

SUMMARY AND CONCLUSION

The preliminary findings reveal only minor changes in the general education curriculum. The review of the general education program requirements revealed that with the implementation of the College Level Academic Skills Program, institutions made modifications in the general education program to address the communications foundation and the mathematical foundation curricular needs. In addition to basic composition, speech became a common requirement at most of the institutions. In the mathematical foundations area not only was the number of hours doubled at four of five institutions, but the basic level of the mathematics courses used to satisfy this requirement were also enhanced.

The analysis of the program of study completed by those students who earned baccalaureate degrees revealed minor changes in content between the two eras. Speech became a requirement more often and the requirements for English composition became more rigid. Although the number of credit hours completed in most categories in the CLAST-era was somewhat higher than those completed during the pre-CLAST era, the differences were minimal.

The program completion rate findings were somewhat atypical. The proportion of Black associate of arts recipients from the Florida Public Community College System decreased by 3 percentage points while the national figures remained static. The proportion of Hispanic associate of arts recipients from the Florida Public Community College increased by nearly 3 percentage points during the same period. The comparison of the Black baccalaureate degree recipients from the Florida State University System showed an increase of approximately 1 percentage point as compared to a decrease at the national level of approximately 1/2 of a percentage

point. Similar findings were observed for the Hispanic baccalaureate recipients.

The findings of this study provide evidence that the implementation of the CLAST test adversely affected the graduation rate of Black minority students in the Florida Public Community College System. However, the implementation of higher standards appear to have enhanced the graduation rate of both Black and Hispanic minorities in the Florida State University System. Modification of the general education program and the higher achievement level required should enhance the rising juniors chances of successfully completing the baccalaureate degree program. Although some institutions currently utilize the CLAST results as a measure of institutional effectiveness, steps must be taken to ensure that minority students are not being excluded in an attempt to enhance assessment test scores and the reputation of the institution.

This study will serve as a catalyst to initiate research on the topic of minority access and will encourage policy makers at the institutions and state levels to address the issue of curriculum change and minority student access.

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